(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 049 276 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
02.11.2000 Bulletin 2000/44

(51) Int. Cl.[7]: **H04H 1/00**

(21) Application number: **00108813.7**

(22) Date of filing: **26.04.2000**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **28.04.1999 GB 9909838**

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(54) Digital broadcast system

(57) The invention which is the subject of this application relates to use of a data transmission system of the sort which is currently used to allow digital data relating to television programmes to be transmitted from a broadcast location, via satellite (6), cable or terrestrial transmission systems to be received by at least one receiver in a premises. The receiver (10) is typically connected to a display screen (14) to allow the display of television programmes generated from the transmitted data. In this invention, the receiver (10) is connected to a further item of apparatus at or in the vicinity of the premises and the control of said further apparatus is achieved via the receiver (10). Operating commands are issued by the receiver (10) and are generated in response to flag data which is transmitted along with the other data and the receiver (10) is capable of reacting to the said flag data and sending a control command to the further apparatus. The flag data can also be used to indicate information data which can be further processed by the further apparatus as controlled by the receiver (10).

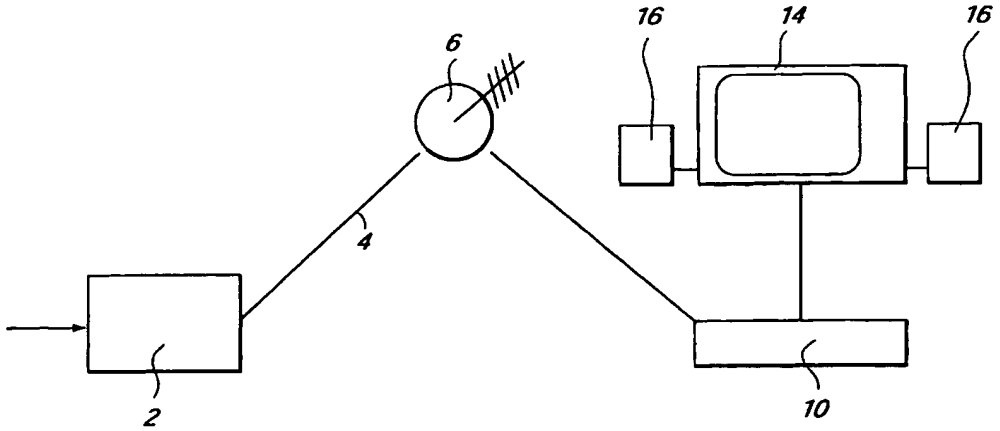

FIG. 1

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Description

[0001] The invention to which this application relates is a broadcast data transmission system which allows the transmission of data relating to an event, hereinafter referred to as flag data to control the operation of the receiving apparatus and/or apparatus connected thereto.

[0002] It is now known, with the advent of digital broadcast systems, to be able to transmit a variety of data which is transmitted from an encoding station at which signals are encoded into digital, reduced length bit streams which are transmitted from the encoding station via satellite, cable or terrestrial transmission systems and the signals are received at a number of broadcast data receivers which are provided in domestic premises or other premises in connection with display screens and speakers such as those provided in television sets. The receivers receive the transmitted data, identify the same, separate the same and then decode and process the data in a required manner so as to provide, for example, video data from which a television display can be generated, audio data from which the sound to accompany the display can be generated, auxiliary text such as electronic programme guide data which allows an electronic programme guide to be generated on the screen of a television set when required. It is known to be able to transmit what is known as flag data which act as identification means which allow the receiver to identify the different types of data and process the same appropriately, the occurrence of particular events in the data stream such as, for example, the change between audio and/or video data; the sending of auxiliary information relating to, for example, high definition television systems and the like. Thus, when received the flag data information is typically removed from the data stream by the broadcast data receiver and processed and acted upon as required.

[0003] The use of this flag data is conventionally restricted to control functions of the broadcast data receiver and the manner in which the received data is processed

[0004] The aim of the present invention is therefore to provide a means for controlling apparatus which is associated with a receiver for digital data.

[0005] In a first aspect of the invention there is provided a data transmission system which comprises the steps of generating an encoded data stream broadcast transmitting the encoded data stream to be received by at least one broadcast data receiver connected to a display means and wherein said receiver is provided in further connection with at least one further item of electrical apparatus, said data stream which is received by the receiver including flag data which is separated by the receiver from the remainder of the data stream, processed and used to generate a control function on the operation of the receiver and/or said apparatus connected thereto.

[0006] In one embodiment, the item of apparatus which is connected with the receiver is a video recorder or other memory apparatus and the flag data is used to cause the receiver to sense any of the control signals of STOP, PLAY, RECORD, PAUSE or the like for the item of apparatus. In one example, it is envisaged that during the transmission and/or reception of data of a particular selected programme, the receiver can be used to control the selective recording of portions of that programme by controlling the START and STOP of the recording function of the video recorder, in response to flag data received.

[0007] In a further embodiment of the invention, the receiver can be connected to an item such as a domestic appliance and used to control the START or STOP of the same. For example, if the flag data can be sent prior to the commencement of adverts in a television programme being watched via the receiver , said domestic appliance in the premises may be caused to start upon the receipt of Hag data via the receiver so that by the time the advert break starts, the appliance or contents thereof are ready for use, therefore saving time to the viewer during the advertising break and ensuring that they do not actually miss any of the programme they are watching.

[0008] In a further embodiment of the invention, the flag data which is transmitted indicates a change in condition of use of the receiver so that the receiver may be used for another purpose. In one example, the receiver is connected to monitoring or metering apparatus and first flag data is sent to indicate to the receiver to change to a mode whereby a demand for information such as, for example, a utility meter reading is received at which stage the metering apparatus reading is obtained and transmitted from the receiver to the remote recipient and further flag data then transmitted to cause the receiver to revert to normal condition.

[0009] In a further aspect of the invention there is provided a data transmission system which includes the encoding of a bit stream of data depicting any of audio, visual, or auxiliary data and wherein said data is broadcast transmitted to be received by at least one broadcast data receiver in a premises, said receiver connected to a display screen and/or printing apparatus and wherein the system comprises the initiation and transmission of information identified by flag data to allow the information to be identified and processed in an appropriate manner by the broadcast data receiver to control the operation of the display screen and/or printing apparatus to allow at least a portion of the received information to be viewed via a display screen connected with the receiver and/or printed via the printing apparatus.

[0010] In one embodiment, the data which is received relates to an encoded form of a printed article such as a newspaper or magazine or event brochure. In one embodiment flag data is sent with each page or portion of the information to allow the identification of each

page and which, in turn, allows the selection by the user of the receiver of which of the pages are to be printed. This system allows the user of the receiver to effectively select and compile a newspaper, magazine or other printed article to their specific requirements. Thus, for example, if they receive data for a newspaper, but are only interested in sport, they can select to only print off the sport pages which are identified by the flag information. In one embodiment the pages may be displayed on a display screen connected to the receiver instead of or prior to printing.

[0011] Specific embodiments of the invention will now be described and Figure 1 illustrates a schematic indication of a transmission system utilised in the invention. The transmission system includes an incoming data stream in digital form to an encoder 2 at a broadcast location. The encoder processes the data stream to reduce the data which is required to be transmitted as is conventionally undertaken. The encoded data 4 is then transmitted, in this case via satellite system 6 but it could be by cable or terrestrial system or telecommunications system, and is received by at least one receiver 10 in a premises. The receiver is capable of identifying the information and separating the data into different types such as video data, audio data, electronic programme guide data, other auxiliary data and so on. The receiver then decodes the received data and generates a display on the screen 14 and audio display via speakers 16.

[0012] In accordance with the present invention, additional flag data is generated at the broadcast location and transmitted. This data may be common or identified for a particular recipient or group of recipients. The flag data can be separated from the data stream processed and used in accordance with pre-designated instructions at the broadcast data receiver. This flag data is, in accordance with the invention, related to a particular function of the receiver or the control of items of apparatus which is connected with the receiver and some examples of this in use are provided as follows.

[0013] In one embodiment, the receiver is connected to a video recorder, but could equally be another form of memory means and the flag data information received is related to the ability to control the video recorder functions. Thus, for example, if a football match is being transmitted on the system and the video recorder has been set to a particular mode so as to be able to record the football match, i.e. is set to the correct channel and set to a timer mode; and the viewer knows that they will not be able to have time to watch the entire match or may not wish to watch the entire match when they return they can utilise the current invention in one embodiment. In this situation, the video recorder does not record all of the football match but rather reacts to signals received from the receiver. In this embodiment it is envisaged that the flag data is generated by the broadcaster and transmitted in relation to particular events in the football match such as, for example, whenever a re-play of an event is to be made as it is deemed to be of particular importance or level of excitement such as a goal, good save or the like. At these instances flag data is sent to indicate that the replay is commencing and the flag data is processed by the receiver into a signal which is sent to the video recorder to cause the same to start to record. When the replay is finished and/or comment on the same is completed, further flag data is sent to the receiver to indicate that and the receiver processes the signal into a form so as to stop the recording function of the video. This can then be repeated a number of times during the transmission of the football match so that in effect, the video will record edited highlight of the match rather than the whole of the match. Furthermore, the flag data can be transmitted and received and unless the video recorder or any other item of apparatus is in a designated mode, the flag data received is discarded without disruption to the receiver or apparatus connected thereto.

[0014] In a further embodiment the receiver can be connected to control apparatus such as domestic appliances, as for example, a kettle in the premises and, in particular, a means for supplying and controlling the power to the kettle. It is known that many people switch on a kettle during an advertising break in a programme that they are watching to make a cup of tea, coffee or the like and attempt to do so before the end of the advertising break so that by the time the programme recommences they are again able to view the same. However, due to the time taken for a kettle to boil, it may not be possible to return in time to watch the programme and this can be irritating to viewers. The present invention therefore allows for the transmission to the receiver of flag data, typically in this case a few minutes before the start of an advertising break and which indicates to the receiver the proximity of the advertising break so that when the receiver processes the appropriate flag data it can send a control signal to the power supply control means of the kettle connected thereto and cause the same to switch on the kettle, thereby commencing the boiling of the same while the viewer is still watching the programme. This means that when the advertising break commences the kettle is at least partially heated and therefore reduces the time which the viewer is required to wait until they are able to use the water to make a cup of tea etc and allows the viewer to return to the television before the end of the advertising break.

[0015] In a further embodiment of the invention, the flag data can be sent in conjunction with additional information which can be accessed. In one embodiment, the data relates to a printed publication such as a newspaper, brochure or the like. The flag data can firstly identify to the broadcast data receiver that the information data is being transmitted and cause the receiver to process the same accordingly. Secondly, the flag data can indicate and identify particular pages of the newspaper. In one embodiment, the receiver can already be pre-pro-

grammed to cause a printing apparatus connected therewith to print all of the pages of the newspaper received or only certain of the pages depending on the user's interest. Alternatively, the receiver processes the data and then displays each or selected pages on a display screen. If desired, the user can then select whether to print some or all of the pages. The printing apparatus is then controlled to print the pages so as to effectively compile a personalised newspaper, magazine or other printed material.

[0016] In a yet further embodiment the invention can be used to activate and allow for the transmission of data from apparatus to which the receiver is connected, to the receiver and then via modem and telephone line or other data transmitting medium to a remote location. For example, a utility provider may wish to receive readings for utility consumption from metering apparatus in the premises of the receiver at regular intervals and so the receiver is controlled to allow the meter readings to be provided, typically at night when the receiver is unlikely to be in normal use. A first flag data is received which effectively allows the receiver to receive a request from the utility provider for a meter reading via a broadcast or telephone request, the receiver then sends the signal for the meter reading to the metering apparatus and the reading is sent, typically via the modem in the receiver, to the remote utility provider. This can take place in a period of time which is ended by the transmission of further flag data by the broadcaster which returns the receiver to normal operating condition.

[0017] The ability to send flag data from the remote location by the broadcaster to, in turn, control the operation of apparatus connected to the broadcast data receiver is new and provides advantages as described herein and it should be appreciated that the apparatus connected to the receiver can be internal or external of the premises to which the receiver is based.

Claims

1. A data transmission system which comprises the steps of generating an encoded data stream, broadcast transmitting the encoded data stream to be received by at least one broadcast data receiver connected to a display means and wherein said receiver is provided in connection with at least one further item of electrical apparatus, said data stream which is received by the receiver including flag data which is separated by the receiver from the remainder of the data stream, processed and used to generate a control function on the operation of the receiver and/or said item of apparatus connected thereto.

2. A transmission system according to claim 1 characterised in that the apparatus which is connected with the receiver is a memory containing apparatus such as a video recorder or DVD apparatus and the flag data is used to cause the same to control any of the functions of stop, play, record, pause to allow the flag data controlled storage of received data.

3. A system according to claim 2 characterised in that during the transmission and/or reception of data for a particular selected television programme, the broadcast data receiver controls the selective recording of at least a portion of said programme by controlling the start and stop of the recording function of the video recorder or DVD apparatus in response to flag data received.

4. A transmission system according to claim 1 characterised in that the receiver is connected to any, or any combination of, domestic apparatus and is used to control the start or stop of operation of the same.

5. A transmission system according to claim 1 characterised in that the flag data used to control the operation of the further apparatus connected to the receiver , is sent to bring about a control function for the further apparatus in synchronisation with a television programme event.

6. A transmission system according to claim 5 characterised in that the television programme event is any of the starting or ending of a television programme or an advertising break.

7. A transmission system according to claim 1 characterised in that the flag data transmitted and received by the receiver is provided to indicate to the receiver a change in condition of use of the same.

8. A transmission system according to claim 7 characterised in that a first set of flag data is sent to the receiver to indicate to the receiver to change to a specified condition of operation, following which the receiver proceeds to operate in the specified condition until a second set of flag data is received to end operation in that condition and change the receiver to a further specified condition.

9. A transmission system according to claim 8 characterised in that the first set of flag data causes the receiver to move to a temporary operating condition, which condition is then stopped upon reception of the second set of flag data whereupon the receiver reverts to the previous operating condition.

10. A data transmission system which includes the encoding of a bit stream of data depicting any of audio, visual, or auxiliary data and wherein said data is broadcast transmitted to be received by at least one broadcast data receiver in a premises,

said receiver connected to printing apparatus and/or a display screen and wherein the system comprises the initiation and transmission of information identified by flag data to allow the information to be identified and processed in an appropriate manner by the broadcast data receiver to control the operation of the display screen and/or printing apparatus to allow at least a portion of the received information to be viewed via the display screen connected with the receiver and/or printed via the printing apparatus.

11. A data transmission system according to claim 10 characterised in that the data which is received relates to an encoded form of a printed article and flag data is sent to allow the identification of each page or portion of the printed article.

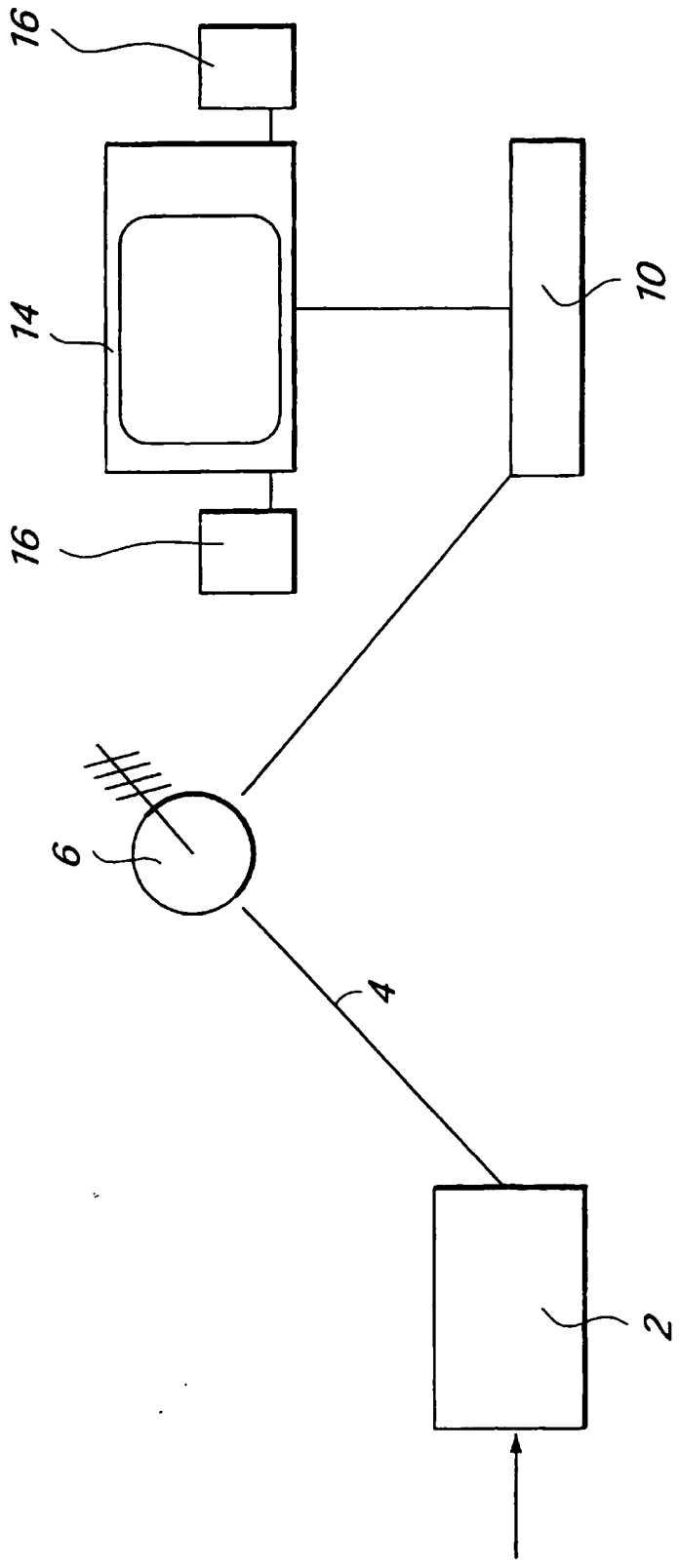

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 00 10 8813

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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

H04H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	4 July 2000	De Haan, A.J.

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 00 10 8813

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